

QUERY CONTROL FORM		RTIS USE ONLY	
Application No. <u>09519599</u>	Prepared by <u>TW</u>	Tracking Number <u>2868397</u>	
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a. Serial No.	f. Foreign Priority	k. Print Claim(s)	p. PTO-1449
b. Applicant(s)	g. Disclaimer	l. Print Fig.	q. PTOL-85b
c. Continuing Data	h. Microfiche Appendix	m. Searched Column	r. Abstract
d. PCT	i. Title	n. PTO-270/328	s. Sheets/Figs
e. Domestic Priority	j. Claims Allowed	o. PTO-892	t. Other

SPECIFICATION

- a. Page Missing
- b. Text Continuity
- c. Holes through Data
- d. Other Missing Text
- e. Illegible Text
- f. Duplicate Text
- g. Brief Description
- h. Sequence Listing
- i. Appendix
- j. Amendments
- (k) Other

CLAIMS

- a. Claim(s) Missing
- b. Improper Dependency
- c. Duplicate Numbers
- d. Incorrect Numbering
- e. Index Disagrees
- f. Punctuation
- g. Amendments
- h. Bracketing
- i. Missing Text
- j. Duplicate Text
- k. Other

MESSAGE

On Page Y, Line 12 makes a reference to a Figure 10 but there is no Figure 10 in the drawing sheets of this file.

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RESPONSE

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barrier metal layer are adversely affected.

Peeling-off of the organic insulating film of a low dielectric constant easily occurs, because of poor adhesion to a silicon wafer or SiO_2 film. Furthermore, the organic insulating film has the disadvantage that its heat resistivity is low. Its thermal decomposition temperature is around 400°C . The disadvantage of low heat resistivity poses a problem for annealing a wafer at a high temperature.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a method for forming an interlayer insulating film having good moisture absorption resistance, good heat resistivity and a low dielectric constant, a semiconductor device using the interlayer insulating film, and a semiconductor manufacturing apparatus for forming the interlayer insulating film.

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According to the method for forming the interlayer insulating film according to the present invention, as illustrated in FIG. ^{1C}~~10~~, the film is formed on a substrate by plasma enhanced chemical vapor deposition using a source gas (or a reaction gas) containing a Si-C-O-H compound, O_2 and B_2H_6 . B (boron), C (carbon) and H_2O are contained in the film thus formed. The inventor found that when this film is annealed using an O (oxygen) plasma, C (carbon) and H_2O in the film are released from the film and thus many voids are created in the film, as illustrated in FIG. 1D. Thus, a porous SiO_2 film containing B (boron) can be formed on the